

In the Claims:

All pending claims, whether amended or un-amended are shown hereinbelow:

1. (Currently amended) An air cooling dry vacuum pump, comprising:

a casing having:

an inlet for a fluid;

an outlet for the fluid;

air supplying means provided at one end in an axial direction of the casing;

an inner tube; and

an outer tube provided around

a pair of rotors with two different axes ~~to be~~ rotated by a motor[,] as a driving source of rotation, the pair of rotors being housed in [a] the casing so as to be received rotatably in the inner tube having an inlet and an outlet for the fluid, said casing being provided with air supplying means and at one end in an axial direction thereof, and formed into a duplex tube structure with an inner tube and an outer tube therearound, and ~~that~~

an air duct, through which cooling air ~~flows as being~~ supplied by the air supplying means, flows along the an axial direction ~~between~~ in-between the inner tube and the outer tube.

2. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said air duct is axially provided along the ~~axial direction corresponding to~~ a heat generating member including the motor, rotational force transmission parts ~~such as~~ having a rotating speed up gear and a timing gear for transmission of a driving force from the motor to the pair of rotors ~~rotor, a timing gear and the like~~, a plurality of roller bearings ~~bearing supporting~~ rotatably supporting a plurality of shafts ~~shaft~~ of the pair of rotors ~~rotor~~, and the pair of rotors engaging with each other, and heat generated from the heat generating member flows ~~conventionally~~ convectionally with cooling air flowing through the air duct by the air supplying means for heat exchange.

3. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said air supplying means is one of a ventilation fan ~~or~~ and a suction fan.

4. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said casing for receiving the pair of rotors, a rotating speed up gear section for receiving the rotating speed up gear as the rotational force transmission parts, and a timing gear section for receiving the timing gear

structure the air duct cooperatively by being connected through a connecting member between the inner tube and the outer tube of the duplex tube structure.

5. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said rotating speed up gear section and the timing gear section are constructed into an upper section and a lower section ~~upper/lower two sections~~ separated by a partition wall, and the ~~two~~ upper and lower sections are communicated through a path with each other so as to be capable of circulating lubrication oil by convection.

6. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said pair of rotors ~~rotor~~ is mounted on a pair of rotor shafts ~~shaft~~, one end of which is rotatably supported by a first roller bearing and a second roller bearing placed at the timing gear section as being fixed on one side of the casing.

7. (Currently amended) The air cooling dry vacuum pump according to claim 1, wherein said pair of rotors ~~rotor~~ is mounted on the pair of rotor shafts ~~shaft~~ so as to approach ~~to~~ an other another side of the casing, which is provided with the

inlet and is sealed, and the other end of the pair of rotor shafts ~~shaft~~ is ~~supported~~ rotatably supported by a second pair of roller bearings ~~bearing~~ placed at a support cylinder with a small diameter, which is fixed on the one side of the casing.

8. (Previously presented) The air cooling dry vacuum pump according to claim 1, wherein an outer wall of at least one of said casing, the motor and the air supplying means is covered with a sound absorbing material.

9. (New) An air cooling dry vacuum pump, comprising:

a casing having:

an inlet for a fluid;

an outlet for the fluid;

air supplying means provided at one end in an axial direction of the casing;

an inner tube and

an outer tube provided around the inner tube so as to form a duplex tube structure;

a pair of rotors with two different axes rotated by a motor as a driving source of rotation, the pair of rotors being housed in the casing so as to be received rotatably in the inner tube, and

an air duct, through which cooling air supplied by the air supplying means flows along an axial direction in-between the inner tube and the outer tube;

wherein said casing for receiving the pair of rotors, a rotating speed up gear section for receiving the rotating speed up gear as the rotational force transmission parts, and a timing gear section for receiving the timing gear structure the air duct cooperatively by being connected through a connecting member between the inner tube and the outer tube of the duplex tube structure.

10. (New) An air cooling dry vacuum pump, comprising:

a casing having:

an inlet for a fluid;

an outlet for the fluid;

air supplying means provided at one end in an axial direction of the casing;

an inner tube and

an outer tube provided around the inner tube so as to form a duplex tube structure;

a pair of rotors with two different axes rotated by a motor as a driving force of rotation, the pair of rotors being housed in the casing so as to be received rotatably in the inner tube; and

an air duct, through which cooling air supplied by the air supplying means flows along an axial direction in-between the inner tube and the outer tube;

wherein said rotating speed up gear section and the timing gear section are constructed into an upper section and a lower section separated by a partition wall, and the upper and lower sections are communicated through a path with each other so as to be capable of circulating lubrication oil by convection.